

Attorney Docket No.: **UMD-0097**
Inventors: **Mandola et al.**
Serial No.: **Not yet assigned**
Filing Date: **Herewith**
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This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of the claims:

Claim 1 (currently amended): An isolated thymidylate synthase nucleic acid molecule of SEQ ID NO: 1, wherein G is replaced by C at nucleotide 12.

Claim 2 (canceled)

Claim 3 (original): A single-stranded nucleic acid probe that hybridizes to the isolated nucleic acid molecule of claim 1, but not to SEQ ID NO: 1.

Claims 4-5 (canceled)

Claim 6 (currently amended): A diagnostic kit comprising the probe ~~as defined by~~ of claim 3, and/or an allele-specific nucleic acid primer of 8-40 nucleotides that specifically hybridizes to and detects ~~the molecule of claim 1 a thymidylate synthase nucleic acid molecule of SEQ ID NO: 1, wherein G is replaced by C at nucleotide 12, and~~ instructions for use.

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Claims 7-10 (canceled)

Claim 11 (currently amended): A method for determining whether an individual has or has a heightened predisposition to cancer or cardiovascular disease, comprising:

(a) obtaining a sample from the individual comprising a thymidylate synthase nucleic acid molecule ~~nucleic acid molecules containing a thymidylate synthase gene~~; and

(b) detecting one or more polymorphisms in the thymidylate synthase nucleic acid molecule ~~TS gene~~, wherein

(i) an individual with an 3R/3R construct in the 5' region of the thymidylate synthase nucleic acid molecule ~~TS gene more likely~~ has or has a heightened predisposition to cancer or cardiovascular disease as compared to an individual with a 3R/3RV, 2R/2R, 2R/3R, or 2R/3RV construct;

(ii) an individual with a +6 bp/1494 3' untranslated region polymorphism of the thymidylate synthase nucleic acid molecule ~~TS gene more likely~~ has or has a heightened predisposition to cancer or cardiovascular disease as compared to an individual with a -6 bp/1494 3' untranslated region polymorphism of the thymidylate synthase nucleic acid molecule ~~TS gene~~;

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(iii) an individual with both the 3R/3R construct in the 5' region and a +6 bp/1494 3' untranslated region polymorphism of the thymidylate synthase nucleic acid molecule ~~TS gene~~ most likely has or has the highest probability of developing cancer or cardiovascular disease (CVD).

Claims 12-20 (canceled)